

A MICROCONTROLLER HAVING A DUAL MODE RELAX OSCILLATOR THAT IS
TRIMMABLE

ABSTRACT OF THE DISCLOSURE

5 A microcontroller having a dual mode relax oscillator that is trimmable.
In one embodiment, the present invention provides a relaxation oscillator circuit
comprising two current sources for establishing a reference voltage for use in
causing the relaxation oscillator circuit to operate in two power modes, and a
control coupled to both current sources for switching between power modes.
10 In one embodiment, the first current source supplies a larger current than the
second current source. In one embodiment, one power mode is a low power
mode for standard operation of the microcontroller and one power mode is a
very low power mode for use in a sleep mode. In one embodiment, the
relaxation oscillator circuit further comprises digitally trimmable components
15 operable to control a current charging a capacitor of the relaxation oscillator
circuit to account for process variation in the capacitor, wherein the current is for
controlling a frequency of the microcontroller. In one embodiment, the present
invention provides a method for generating a clock signal. A switched current
source corresponding to a present power mode is selected by switching
20 between the first current source and the second current source. A reference
voltage is generated based on the switched current source. In response to the
reference voltage, the relaxation oscillator circuit generates a clock signal.